IN THE CLAIMS

Complete listing of the claims:

1. (Currently amended) A method for securely communicating information, comprising ~~the steps of~~:

optically encrypting said information and storing the resulting encrypted data;

reading out the encrypted data in the spatial domain and converting said encrypted data to the temporal domain;

transmitting the converted encrypted data;

receiving the transmitted encrypted data and converting the received encrypted data to the spatial domain using threshold sampling to avoid overlap between adjacent data in the transmitted encrypted data; and

decrypting the converted received encrypted data to recover said information

2. (Currently amended) The method as defined by claim 1, wherein said ~~step of~~ reading out the encrypted data in the spatial domain and converting the encrypted data to the temporal domain is implemented using ultrafast laser pulses.

3. (Currently amended) The method as defined by claim 1, wherein said ~~step of~~ reading out the encrypted data in the spatial domain and converting the encrypted data to the temporal domain is implemented using ultrafast laser pulses spread in the spatial domain according to their spectral components.

4. (Original) The method as defined by claim 3, wherein said ultrafast pulses are spread

in the spatial domain by diffraction.

5. (Currently amended) The method as defined by claim 2, wherein said ~~step of~~ transmitting the converted data comprises transmitting said converted data over an optical network.

6. (Currently amended) The method as defined by claim 2, wherein ~~the step of~~ said converting received encrypted data to the spatial domain is implemented using ultrafast laser pulses.

7. (Original) The method as defined by claim 2, wherein said optical encryption includes random phase encryption.

8. (Original) The method as defined by claim 2, wherein said optical encryption includes double random phase encryption.

9. (Original) The method as defined by claim 8, wherein said double random phase encryption includes phase encryption in the spatial domain and phase encryption in the frequency domain.

10. (Original) The method as defined by claim 2, wherein said storing of encrypted data comprises holographically storing said encrypted data.

11. (Currently amended) The method as defined by claim 2, wherein said ~~step of~~ reading out and converting said encrypted data comprises ~~includes~~:

forming a real-time hologram using read-out encrypted data and a reference beam;

reading out the real-time hologram; and

converting the read-out hologram from the spatial domain to the temporal domain.

12. (Currently amended) The method as defined by claim 11, wherein said ~~step of~~ reading out the real-time hologram comprises directing a diffracted ultrafast laser pulse at said real time hologram.

13. (Currently amended) The method as defined by claim 5, wherein said ~~step of~~ reading out and converting said encrypted data comprises ~~includes~~:

forming a real-time hologram using read-out encrypted data and a reference beam;

reading out the real-time hologram; and

converting the read-out hologram from the spatial domain to the temporal domain.

14. (Currently amended) The method as defined by claim 13, wherein said ~~step of~~ reading out the real-time hologram comprises directing a diffracted ultrafast laser pulse at said real time hologram.

15. (Currently amended) The method as defined by claim 6, wherein said ~~step of~~ decrypting the converted received encrypted data includes phase decoding of said converted received encrypted data.

16. (Currently amended) The method as defined by claim 6, wherein said ~~step of~~ decrypting the converted received encrypted data includes phase decoding of said converted

received encrypted data in the spatial domain and in the frequency domain.

17. (Currently amended) A method for securely transmitting information, comprising ~~the steps of~~:

optically encrypting said information and storing the resulting encrypted data;

reading out the encrypted data in the spatial domain, and converting said encrypted data to the temporal domain using threshold sampling to avoid overlap between adjacent data in the encrypted data; and

transmitting the converted encrypted data.

18. (Currently amended) The method as defined by claim 17, wherein said ~~step of~~ reading out the encrypted data in the spatial domain and converting the encrypted data to the temporal domain is implemented using ultrafast laser pulses.

19. (Currently amended) The method as defined by claim 17, wherein said ~~step of~~ reading out the encrypted data in the spatial domain and converting the encrypted data to the temporal domain is implemented using ultrafast laser pulses spread in the spatial domain according to their spectral components.

20. (Original) The method as defined by claim 18, wherein said optical encryption includes random phase encryption.

21. (Original) The method as defined by claim 18, wherein said optical encryption includes double random phase encryption.

22. (Original) The method as defined by claim 18, wherein said double random phase encryption includes phase encryption in the spatial domain and phase encryption in the frequency domain.

23. (Original) The method as defined by claim 18, wherein said storing of encrypted data comprises holographically storing said encrypted data.

24. (Currently amended) The method as defined by claim 17, wherein said ~~step of~~ reading out and converting said encrypted data comprises ~~includes~~:

forming a real-time hologram using read-out encrypted data and a reference beam;
reading out the real-time hologram; and
converting the read-out hologram from the spatial domain to the temporal domain.

25. (Currently amended) The method as defined by claim 24, wherein said ~~step of~~ reading out the real-time hologram comprises directing a diffracted ultrafast laser pulse at said real time hologram.

26. (Currently amended) Apparatus for securely communicating information, comprising:

means for optically encrypting said information and storing the resulting encrypted data;
means for reading out the encrypted data in the spatial domain, and converting said encrypted data to the temporal domain;

means for transmitting the converted encrypted data;

means for receiving the transmitted encrypted data and converting the received encrypted data to the spatial domain; and

means for decrypting the converted received encrypted data to recover said information using threshold sampling to avoid overlap between adjacent data in the converted encrypted data

27. (Original) Apparatus as defined by claim 26, wherein said means for receiving the transmitted encrypted data and converting the received encrypted data to the spatial domain includes diffracted ultrafast laser pulses.

28. (Original) Apparatus as defined by claim 27, wherein said means for optically encrypting includes means for implementing double random phase encryption.

29. (Currently amended) For use in conjunction with a method for securely communicating information that includes the steps of: optically encrypting said information and storing the resulting encrypted data; reading out the encrypted data in the spatial domain, and converting said encrypted data to the temporal domain; and transmitting the converted encrypted data; a receiver subsystem, comprising:

means for receiving the transmitted encrypted data and converting the received encrypted data to the spatial domain; and

means for decrypting the converted received encrypted data to recover said information using threshold sampling to avoid overlap between adjacent data in the converted received encrypted data.

30. (Original) The receiver subsystem as defined by claim 29, wherein said means for receiving the transmitted encrypted data and converting the received encrypted data to the spatial domain includes diffracted ultrafast laser pulses.

31. (Original) For use in a method for securely communicating information, wherein said information has been optically encrypted and the resultant encrypted data has been stored, the method comprising:

reading out the encrypted data in the spatial domain, and converting said encrypted data to the temporal domain;

transmitting the converted encrypted data;

receiving the transmitted encrypted data and converting the received encrypted data to the spatial domain; and

decrypting the converted received encrypted data to recover said information using threshold sampling to avoid overlap between adjacent data in the converted encrypted data.

32. (Original) The method as defined by claim 31, wherein said step of reading out the encrypted data in the spatial domain and converting the encrypted data to the temporal domain is implemented using ultrafast laser pulses.

33. (Original) The method as defined by claim 31, wherein said step of reading out the encrypted data in the spatial domain and converting the encrypted data to the temporal domain is implemented using ultrafast laser pulses spread in the spatial domain according to its spectral components.

34. (Original) The method as defined by claim 31, wherein said stored encrypted data comprises holographically stored encrypted data, and wherein said step of reading out and converting said encrypted data includes:

forming a real-time hologram using read-out encrypted data and a reference beam;

reading out the real-time hologram; and

converting the read-out hologram from the spatial domain to the temporal domain.

35. (Original) The method as defined by claim 34, wherein said step of reading out the real-time hologram comprises directing a diffracted ultrafast laser pulse at said real time hologram.